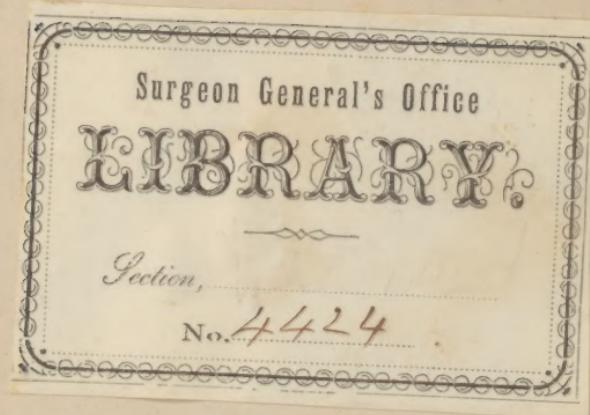


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CATTLE DISEASE.

REPORT OF THE COMMISSIONER

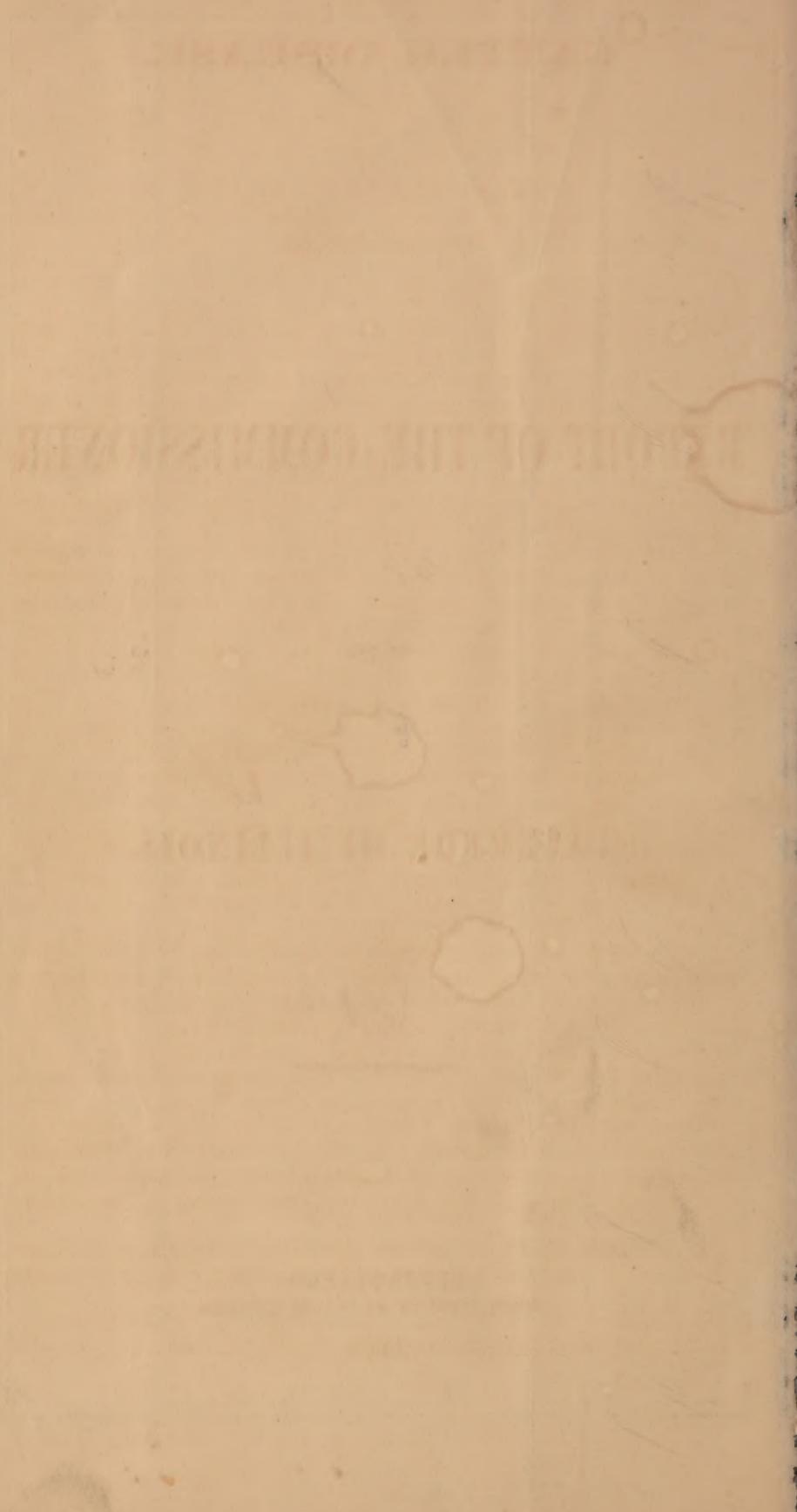
TO THE

GOVERNOR OF ILLINOIS.



SPRINGFIELD:
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CATTLE DISEASE.

REPORT OF THE COMMISSIONER

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PROCLAMATION.

To the People of the State of Illinois:

WHEREAS, an epidemic, called "pleuro-pneumonia," highly contagious and fatal in its character, is now prevailing to such an extent among the Cattle of several of the Eastern States of the Union, as to excite great fear and apprehension that its destructive ravages may spread over the whole country unless prompt and efficient precautionary measures are taken to stop its devastations; and whereas, the people of the State of Illinois are especially interested in using all possible care to keep this disastrous plague from among the large and valuable herds of cattle in our State; and whereas, I have been requested by many good citizens of the State to take some official action towards averting the danger of such disease in our midst:

Now, therefore, I, JOHN WOOD, Governor of the State of Illinois, in order to guard against all possibility of infection, whether by accident, carelessness or design, do hereby recommend and request that all farmers, drovers, merchants, and citizens generally, of the State of Illinois, shall not purchase or import into this State, any cattle, already subject to, or infected with this disease, or which have been in any way exposed to such contagion, or from any State or region of country where such disease exists, or is supposed to exist, or into which the same is liable to spread by reason of its contiguity to the infected districts; and I further recommend and request all owners, officers and agents of steamboats, canals and railroads, and all common carriers of stock, to refuse to transport any cattle into this State which may be so diseased or infected, or suspected of the same, or which may come from such infected or suspected districts; and I further recommend and request that all Agricultural Societies, farmers and citizens carefully watch any appearance of such disease, or danger of the same, and should any appear, promptly communicate a full and detailed report of all the facts to JOHN P. REYNOLDS Esq., Secretary of the State Agricultural Society, at Springfield, Illinois.

I have commissioned and empowered Dr. ANDREW MCFARLAND, of this State, to proceed to the States and regions of country where said cattle disease exists, and to collect all facts and information to be obtained in relation to the disease, its treatment, cure and proper method of arresting its spread, and I have directed that he shall make such information public at his earliest convenience.

Having no direct or official authority to take more peremptory measures, I request the zealous and earnest voluntary co-operation of all good citizens, and particularly of all Agricultural Societies of this State, to arrest this epidemic, the careless or accidental introduction of which would destroy millions of dollars worth of our property, ruin one of the most important and remunerative staples of our commerce, and paralyze the energies of our farmers who are already suffering from the repeated failures of their crops.

In witness whereof, I have hereunto set my hand and caused the great [L. S.] seal of State to be hereunto affixed. Done at the City of Springfield, this 22d day of June, A. D. 1860.

By the Governor,

JOHN WOOD.

O. M. HATCH, *Secretary of State.*

REPORT.

To His Excellency, John Wood,

Governor of the State of Illinois:

Honored Sir:—While at the East to attend the annual meeting of the American Association of Superintendents of Insane Hospitals, I found myself, after its adjournment, in Boston, just at the time the Massachusetts Legislature had convened in extra session to devise further measures for the arrest of an alarming distemper among cattle, then prevalent in a certain district of the State. I found that Commissioners had already arrived from the States of New York, Ohio and Rhode Island, appointed by the authorities of those States, to investigate and report upon the subject, then beginning to arouse a national interest. Extraordinary facilities were being afforded these gentlemen to prosecute their investigations. They were allowed seats on the floor of the House during the interesting examination of witnesses, veterinary surgeons, and gentlemen of science, and it was known that when they should proceed into the infected district, they would be accompanied by the Massachusetts Board of Commissioners, and a corps of veterinary surgeons, who would select, slaughter, and demonstrate, in the amplest manner. Perceiving that at no possible future period could such facilities occur to become acquainted with a subject which I felt sure would compel the attention of the citizens of this State, which stands second to no other in the magnitude of its cattle interest, I announced myself as the cultivator of a farm belonging to the State of Illinois, and, with that simple credential, was admitted to all the privileges, and shared all the courtesies which the other gentlemen were receiving. After listening to the thorough investigation of the subject by the Legislature, I visited the section of country where the disease exists, in company with about twenty other gentlemen, where the examination of cases was as complete as science and sur-

gical experience could make it. Collecting in this manner an abundance of notes, observations, and documentary matter of an interesting character, I was prepared to lay the subject before the State Agricultural Society, in the form of an essay for its published transactions. I was also furnished, from various quarters, with specimens of the diseased lungs, showing the form in which the disease commits its ravages upon the animal, which, being brought with me, preserved in spirits, may be seen at the State Hospital for the Insane, by those curious in such matters. Although, could a selection have been made, some one might have been commissonsed better able to collect the facts, yet such an opportunity would in all probability, never again occur, and my attention to it had the somewhat compensating advantage, that it is attended with no cost to the State. Your commission, issued since my return, upon a knowledge of these opportunities enjoyed, is of course retrospective in its intent, and simply gives me the advantage of reporting on the subject sooner, and in a more agreeable form than I had at first contemplated.

The disease, somewhat unfortunately called PLEURO-PNEUMONIA, is not new. Scattering cases, closely resembling the same disease in the human subject, have long been known to veterinary surgeons. In the cases hitherto known, it consists in a simple inflammation of the substance of the lungs and their enveloping membranes, sometimes terminating fatally by mere excess of inflammation, but more commonly having no more serious consequences than the throwing out of a quantity of serum, or thin watery matter in the cavities in which the lungs repose, producing some difficulty in breathing for a season, and then gradually passing off with no further trouble. Cases of this kind are, without doubt, occurring in all considerable herds of cattle, especially in the Spring season, and attract little attention, having in them no elements of malignity or contagiousness. But, you are aware that it is a law attending many forms of disease common to the human family, that what we are accustomed to regard as a simple malady as it ordinarily appears to us, sometimes assumes the form of a devastating scourge, sweeping out of existence multitudes of human

beings, and then disappearing as mysteriously as it came. The Massachusetts cattle disease has no more resemblance to the ordinary pleuro-pneumonia than Asiatic cholera has to an ordinary cholera morbus, or than the fatal influenza of 1842-3 bore to influenzas as they ordinarily appear.

The natural home of this disease, where it first began to attract the attention of the world, is in the mountainous districts of South Eastern France, Switzerland, Piedmont, and the contiguous countries. Sequestered and isolated valleys, in the immediate vicinity of lofty mountain ranges, appear, for a long period, to have been the only districts where this disease especially exhibited its fatal nature. In the general break-up of boundaries and customs lines incident on the French Revolution of 1789, and in the transportation of army supplies for the war of twenty years following, the disease broke through its natural boundaries, and began to make its appearance in countries where it had hitherto been unknown, and showing, according to authority which appears beyond a question, almost precisely the same features which we recognize in the disease now prevailing in Massachusetts. It appears to me to be one of the best proofs of its contagious nature, that in its progress, it goes step by step, and not with the flying sweep that marks an epidemic which is not dependent on contagion alone.

In 1828 the disease had appeared in Belgium, where, from its devastating nature, it at once attracted the attention of government. According to good authority, the Belgian government spends annually about \$20,000 for cattle destroyed in holding the disease in check. In the Netherlands, according to the reports of a scientific French Commission, the losses are immense, and, as illustrative of the views there taken of the subject, it is stated in the same connection, that in seventeen Communes there was paid during a period of nineteen years, the sum of \$10,400,000. The payment of this enormous sum would be incredible, if it was not stated by the best authority. It shows what momentous interest the subject has excited where the ravages of the disease have been experienced.

The disease had reached England in 1841, where it has

since existed with greater or less inveteracy according to the activity and success of the means resorted to for its suppression. During the last winter, (1859-60) it appeared with great virulence among the herds of the London dairymen, especially on the South side of the Thames. According to the newspaper accounts, the disease is unquestionably the malignant Pleuro-Pneumonia, and has caused the alarming mortality of 95 per cent. of the herds infected—almost their entire extinction.

Rev. Daniel Lindley, an American Missionary among the Zulus in South Africa, now on a visit to this country, gives in his testimony before the Legislature of Massachusetts, an account of the introduction of the disease among the Cape Colonists. I wish that space allowed my quoting Mr. Lindley's testimony entire, as the circumstances of the cattle herds of South Africa, in their want of isolation, are closely similar to those of the prairie districts of the West.

The disease was imported into South Africa in the body of a bull, brought from Holland about six years ago. In that instance, as in Massachusetts, no alarm was at first felt. The animal had been two months on its passage, and did not appear positively diseased for six weeks after landing. It died, after communicating the disease to several other cattle, and from the total want of isolating conveniences, the disease was scattered in every direction. He says: "I can affirm without hesitation, that where it has got into a herd of cattle, not more than five out of a hundred have been spared. Occasionally one has passed through, and has not had the disease, at all; and a few on the other hand (two or three in a hundred) have recovered, and no more. I know of one man who had five hundred head of cattle, and the disease got in, and he had not five left."

The disease spread the more rapidly, according to Mr. Lindley, from the belief at first entertained that it was not contagious. Among the instances which he quotes of its contagiousness and fatality, I select the following:

"Two natives were trading, and brought the disease from the country where they went, two hundred miles, and set it

down into a perfectly healthy region into a herd of about eighty cattle, and there it spread, and they were every one carried off."

"A native working for an Englishman in an infected district, ignorantly took his pay in two young cattle, which he carried into a district, within twenty miles of which the disease was totally unknown. These communicated the disease to four 'kraals' of healthy cattle, 150 head, *all* of which died. The alarm being raised, the natives immediately drove all their remaining herds to distant pasturage, where vigilant patrols saved them from further contamination."

Mr. Lindley concludes his testimony, after imparting to the Committee much interesting information on the subject, as follows: "Were the question asked me, 'is the disease communicated by contagion?' we should say, Yes, and we should just as soon doubt that the sun made day-light. There are thousands upon thousands of facts to prove it. * * * It has been to the country a great scourge. Thousands and hundreds of thousands of cattle have died, and many of the people have been made poor by the ravages of the disease, and the only hope they have of securing a comfortable subsistence, and recovering their former position in respect to property is through sheep. They have given up all idea of grazing cattle, for the disease is so widely spread, and they have no hope that it will ever be exterminated."

Mr. Lindley, from the novelty and alarming import of his testimony, might almost be taken for an alarmist, to a degree to impair his credibility; but I am able to state from knowledge, that he is, on all other subjects, a gentleman of candor and moderation in making statements, with no perceivable inducements to exaggerate the results of his experience.

We also have the corroborative testimony of Mr. Ellis, a late traveller in South Africa, who, wholly incidentally, alludes to the cattle disease as the scourge of the country. It is furthermore stated by various authorities, that the expedient of inoculating healthy animals with portions of the diseased lungs of the affected, was finally resorted to in South Africa, as the only apparent method of saving the cattle from

total destruction. This process is simply the introduction of a bit of diseased lung under the skin at the extremity of the tail. When the point of inoculation has festered, if its free discharge can be promoted, the animal recovers with only a slight constitutional disturbance. If the point of inoculation will not discharge, the inflammation extends into the body of the animal—producing a case as unfavorable as one taken in the natural way. According to Mr. Lindley, the cattle thus saved constitute a large proportion of those remaining in the colony.

Another incident in the history of the disease is its appearance in Australia, in 1857. In this instance the inhabitants recognized it at once, and it was not suffered to extend beyond the herd first infected. A meeting of the citizens was at once held, who, by resolution, declared "that it is the opinion of this meeting that the disease in question is contagious pleuro-pneumonia, and that if allowed to spread it will be very disastrous to the colony. This meeting is of the opinion that the cattle should be purchased for the purpose of being destroyed." The measures proposed by the meeting were unanimously adopted, and the disease thus effectually suppressed without further extension.

With these preliminary observations on the history of this disease, and the experience of other countries in its visitations, we come to its introduction into our own.

Winthrop W. Chenery, Esq., a cattle importer of Belmont, Mass., received on the 23d of May, 1859, through his agent in Holland, three cows and a heifer. They had been landed in Boston, after a voyage of forty-seven days from Rotterdam. Although purchased in a healthy district, the disease is known to exist at the place of embarkation, where they had remained several days waiting shipment. They suffered severely on the voyage—one of them being unable to stand for twenty days before arrival, and another also being much mutilated. One of these cows died a week after arrival, and the other two days subsequently.

The other two were then thought to be healthy, and no suspicion had attached to the death of the two first—it being at-

tributed to the effects of the voyage. On the 20th day of June, two weeks after the death of the second cow—the third cow was found to be sick. She was confined in a stable-pen about fifty feet square, with some twenty or thirty other head of cattle. She died after nine days' sickness, on the 29th of June. In August, another valuable cow, imported from Holland seven years previously, sickened and died in a fortnight. From that time they sickened and died rapidly, until his loss amounted to thirty head. It is not needful to state that all these cattle were above the average value, and therefore may be supposed to have had all the care their value would warrant. We now leave Mr. Chenery's herd, to follow the disease elsewhere.

On the 29th of June—the same day on which the third cow died—Mr. Chenery sold three calves to go to the farm of Mr. Curtis Stoddard, of North Brookfield, in the adjoining county of Worcester. They went by rail, and on the way from the depot to Mr. Stoddard's farm, one of the calves was observed to falter. The animal being found sick, was taken to the farm of the father of the purchaser, Mr. Leonard Stoddard, where it remained several days, but was finally brought back by Curtis Stoddard, at whose farm it died on the 23d of August. While at Leonard Stoddard's, the calf had come in contact with several cattle in the same stable. In about three weeks after the arrival of the calf at Leonard Stoddard's—say, about the 20th of August—two oxen and a cow were taken with the same disease and died in ten days. The disease continued its ravages in his herd till he lost fourteen oxen and cows before the visit of the Commissioners, and eighteen others were condemned by them as diseased.

About the first of November, Curtis Stoddard—with a wisdom which we will not stop to question—sold off his stock at auction, reserving to himself nine of the most valuable. It is said, that up to the time of the auction, he had actually lost only the Chenery calf, and he placed the remaining animals among his relatives—thus showing, as some contend, his innocence of the mischief he was doing. From this auction sale of eleven animals, the infection was scattered in every di-

rection. Says one of the Commissioners: "Without a single failure the disease has followed those cattle,—in one case more than two hundred cattle having been infected by one which was sold at Curtis Stoddard's auction." It has been remarked before that C. Stoddard reserved nine cattle for himself after the auction—probably the most valuable. Yet, when the Commissioners came to visit his herd in the Spring, they were all condemned as diseased, and, in the last one of the oxen killed, was found a cyst as large as a man's fist—both lungs being alike affected. A portion of one of these lungs is in my possession, with its cyst and contents, and will be alluded to again in another connection.

The spread of the disease from Leonard Stoddard's was, if possible, more tragical still. He kept six or eight oxen which he employed in teaming. He was drawing some lumber, and stopped over night at Mr. Needham's. Needham lost his whole herd. Eight or ten died, seven or eight more condemned by the Commissioners, and all finally destroyed, in consequence of that one night's stay in his barn of the death-bearing team of Stoddard. To quote from the testimony of Amasa Walker, Esq., one of the Commissioners, in regard to the further spread of the disease: "Mr. Stoddard sold an animal to Mr. Woodis. He had twenty-three fine cows. It ruined his herd utterly. Seven or eight animals died before the Commissioners got there. Mr. L. Stoddard sold a yoke of cattle to Mr. Olmstead, one of his neighbors, who had a very good herd of cattle. They stayed only five days in his hands, when they were passed over to Mr. Doane. In those five days they had so infected his herd that it was one of the most severe instances of the disease that we have had. The cattle that were passed through Mr. Olmstead to Doane, were lent to go to the moving of a building from Oakham to North Brookfield. They were put in with twenty-two yoke of cattle and employed a day and a half. It has proved since, that every one of these cattle took the contagion. They belonged to eleven different herds, and each one of these has formed a new focus for the spread of the disease."

During the progress of these events, so calculated to excite consternation, the Legislature of Massachusetts was assembled at its regular session, and the alarming spread of this mysterious scourge was made to arrest its attention. A bill was passed, providing for the appointment of three Commissioners, to go at once into the infected district, and arrest the disease by any means their discretion would justify. Perceiving its malignant nature, and the readiness with which it was communicated, they attempted its extirpation by the slaughter of all suspected cattle. But at that date in its progress (April, 1860,) the cattle were beginning to leave the yards and stables, where the separation of the sound from the infected would have been comparatively easy, and seek the pasturages and mingle with others. It may also be well conceived that, with release from stables and cattle pens, the disease became of a milder and less striking character, and that cases, unsafe to be saved, might at the same time be carrying about and distributing a fatal disease, which was kept latent in themselves by the favoring influence of the season. It will thus be seen that circumstances, in themselves apparently favorable to the further spread of the disease, were embarrassing to the Commissioners, who felt the conflict between reluctance at the possibly needless destruction of property, and the danger of tampering with an evil that might, in a less favorable season, break out with renewed violence. They might well ask themselves the question, if a calf, detained a few days at Leonard Stoddard's, should have exterminated his herd, or if a yoke of cattle a single night at Needham's should have caused the death in rapid succession of eight or ten of his, what consequences will not come from the twenty-two yoke of cattle, infected during the moving at Oakham, and now scattered in every direction? The disease was then known to exist in North Brookfield, Brookfield, West Brookfield, Spenser, Sturbridge, New Braintree, Oakham, Hubbardstown, and strongly suspected to exist in Pelham, Warren, Hardwick, Barre, Pepperell and Malden,—how much further it had extended could only be matter of conjecture.

With powers granted them only to destroy and make compensation for, the Commissioners at once ordered the slaughter

of 842, and had designated somewhat over a thousand others, not deemed safe to be kept.

But, finding the physical capacities of three individuals incompetent to the following up of a disease likely to appear in many different localities at once, and the appropriation made by the State already having been exhausted, the Commissioners were compelled to petition the Governor to convene an extra session of the Legislature, at which the information was gathered now before the public. At this session the number of the Commissioners was increased as well as their powers, and extraordinary powers were given to cities and towns to destroy, isolate, and interdict the passage of cattle from districts at all suspected of infection. An appropriation of \$100,000, was also placed at the discretion of the Commissioners, to be used in extinguishing the disease wherever found to exist.

This synopsis of the history of the disease in Massachusetts, brings us into the month of June, 1860. And here, in passing, it may be justly due to the Executive of Massachusetts, and especially to the intelligent Commissioners originally appointed to meet these extraordinary emergencies, to say, that it is not improbable that the energetic measures that have been adopted may lead, from their very success, to an under-rating of the danger that has impended; much as the physician, who promptly arrests a mortal disease in its incipiency, often gets less applause than he whose apathy allows it to progress far towards a fatal termination before his remedies are effective.

At this present time of writing, partly in consequence of the decisive measures briefly alluded to above, and partly from the favoring influences of the season, the searcher for striking specimens of this disease, among the healthy hill-pastures of Massachusetts, would find few to reward his search. Isolated and "suspected" cattle, with some cough, irregular breathing, and loss of condition, would be all that would represent a disease that has caused such wide-spread consternation. Let us hope we shall hear no more from it; yet who can tell what amount of latent disease may become manifest when the free air of the pasturages shall again be exchanged for long nights

and wintry days in the barns, or in the unhealthy contact of numbers in the barn-yards? It may be a harmless pastime for those who have culled the flying rumors in the newspapers, to sneer at the farmers of Worcester county as "alarmists," and possibly, to point to the total disappearance of the disease, from this time forth, to show that "the fools are not all dead yet." But we must concede that if they have been alarmists, they have been so at their own expense entirely; and,—it may yet appear—to *our* advantage. Feelings of regard for distant interests certainly prompted Governor Banks' injunction—"In the *first* instance, I think the Legislature should regulate or prohibit, so far as it can be wisely and properly done, the exportation of cattle in which the seeds of disease may possibly exist, from this State into other neighboring States."—*Message to the Legislature, May 30th, 1860.*

Fortunately this flying pestilence alighted on the spot in the Union best prepared to stamp it under foot and bury it out of sight. I leave it to imagination to suggest the consequences, if this disease, instead of being set down among the small and enclosed farms in Massachusetts, had broke out among the vast and ever moving herds that cloud the broad prairies of our Strawns and Dunlaps, our Browns and Alexanders!

But it is now time to pay some attention to the important subject of what the disease consists in.

I have applied the term "unfortunate" to the name Pleuro-Pneumonia, as designating the disease in question; partly, because it must chiefly be in the mouths of those who have no great affection for Latin derivatives, and may supply a ridiculous word to those who would hardly dare to ridicule a grave subject; and chiefly, because it does not, as I conceive, cover sufficiently the true elements of the disease. Those who throw a doubt over the contagious nature of the disease—and some, of the highest medical ability in Massachusetts, have done so—base their doubts on analogies in diseases of the human subject. "We find," say they, "the same disease in our professional practice, and it is never, under any circumstances, contagious; why should cattle be exception to all the laws that govern the communication of disease?" And the question is

a difficult one to answer. But when we come to regard the disease a general one, with a lung affection as simply its common attendant, we find no difficulty in conceding its contagiousness any more than we have in granting contagious properties to certain forms of fever, or even small-pox. It appears in various parts of the testimony, that cattle were sometimes killed having many symptoms of the disease about them, in whom on examination, little or no lung disease was found. I saw two cows killed in New Braintree, about the 12th of June, evidently seriously affected, and with similar symptoms to others, in which no lung disease was discoverable whatever. But in both cases the heart was entirely flaccid, and with hardly any more firmness of texture than a sponge filled with water.

Dr. Thayer, an eminent veterinary surgeon, who has followed up the disease by the closest observation from the beginning, and who conducted the examination of the above named animals, states that the heart, in all cases has been found showing the same feature. I also observed in the cattle alluded to, a singular want of control over the muscles of the whole system, in their attempts at locomotion, as if the whole nervo-muscular system of the animal was under the same kind of prostration that marks what physicians term the "prodromic stage" of fevers, when the brain and nervous centres are feeling the effects of the morbid cause, be it contagion or otherwise.

My belief in regard to the *essential* nature of the disease may be summed up as follows:

1. That it is a general fever, of peculiarly subacute nature (asthenic) with a usual tendency to localization in the lungs, by the same law of disease under which other general fevers localize themselves as the disease progresses.
2. That it is propagated—*according to the best present light we have*—by a contagion as distinct as that of small-pox, measles, or scarlet fever; with its regular laws of propagation and incubation, and that it would have its own self-limit, like the above diseases, but for its pulmonic complications.
3. That disease of the lungs, although so commonly found as to constitute the rule, is not necessarily present, but that

cases may occur of a fatal character before the stage of the disease is reached in which the lungs begin to suffer, as many cases of scarlatina or small-pox are, under the same circumstances.

The symptoms of the disease called Pleuro-Pneumonia, are as follows:

If the animal is at pasture it will be found getting apart from the rest of the herd ; there will be a disinclination on the part of the animal to stand on its feet, or if compelled to be on its feet, stands in a leaning attitude, with an arched back and stiffened appearance. When urged to move, it will do so for short distances only, and walks with a staggering gait. During the middle of the day the animal appears in better condition, eats more freely, and moves about with greater ease. At this period the pulse is oppressed, and with less than its usual frequency. The appetite is commonly, but not invariably, poor ; rumination is suspended ; the bowels become costive, and, during the early days of the disease, the surface appears cold ; the skin shrinks and becomes tight over the ribs, and if pressure is made on the spine the animal flinches, as if in pain. In a more advanced stage of the disease, the pulse increases in frequency and volume, the heat of the body is irregularly distributed, the breathing becomes labored, and, in milch cows, the secretion of milk is diminished or suspended. At a stage yet more advanced the cough makes its appearance, the animal drools at the mouth, protrudes its head forward, as if to draw its breath easier, the eye loses its lustre, and exudes from the lids a viscous matter, which quickly dries into a crust. If, at this time, the ear is applied to the sides of the chest, there will usually be found, on one side or the other, an absence of the soft breezy murmur that healthy respiration gives to the ear. There will sometimes be heard a hard blowing sound, occasionally an unusual rattle, and sometimes no sound whatever. These several sounds indicate that either the air passages are narrowed by disease, or that the air gurgles through deposits of corrupted matter, or else the lung has solidified and of course become wholly useless. In a case

thus far advanced, there is probably no remedy, and death is the only result.

When an animal has died, with any of the symptoms mentioned as abounding in the last stages of the disease, some one or other, and may be nearly all, of the following appearances will be found on dissection:

In many, and perhaps a majority of cases, there will be found adhesions of the pleura, or covering of the lungs to the sides of the chest. Sometimes these are extensive, and again very partial and slight. They are the result of inflammation of the pleura, and are so general as to have given the disease a part of its name.

A second appearance is, the presence of large quantities of serum, or yellow watery fluid, in the cavities of the chest. This is sometimes enormous in quantity, although it does not necessarily betoken a violent or fatal case.

A third appearance is, an infiltration of matter, solid in appearance after death, into the substance of the lungs, giving them a marbled appearance, and rendering them, for the time being, impervious to air. This is simply the deposit of fluid into the cellular texture of the lungs, or that structure that separates the air vessels from each other. In an animal of good constitution, it is not of itself a grave symptom, as it may be, and doubtless frequently is, readily absorbed, and the animal restored to health. I have a specimen from lungs that were totally made useless, from their entire infiltration, and, of course, the animal died from suffocation, if from nothing else.

Hepatization, or the solidification of the lungs into a matter resembling liver, is a common appearance in fatal cases, and is perhaps never recovered from.

Another condition is, the existence, in the substance of the lungs, of cysts, or cavities having no outlet, and containing a solid substance, hardened in some instances into the consistency of old cheese. Sometimes this interior substance fills the whole cyst, and at others it floats in a mass of pus or corrupted matter. This extremely common and interesting condition, marking the disease as distinct from any thing found in the

human species, would lead one to suppose that the effect of the poison was to kill outright a portion of the lung, and that the encysting process was an effort of nature to isolate the dead portion from the healthy lung till the absorbent vessels could carry it out of the system. A specimen from the lung of one of L. Stoddard's oxen, in my possession, finely illustrates this form of disease.

There are other appearances found in the lungs of cattle that have died, such as, deposits of pure pus, indurations of the lungs, etc., but the above, and especially the few last appearances, are sufficient to establish a case as being pleuropneumonia. The various appearances sometimes run into each other—few of them ever existing quite alone.

Perhaps the most important question that your Commissioner could investigate in the whole range of the subject, is the manner by which this disease is propagated or communicated. Is it a contagious disease; or, is it an epidemic, propagated independently? A word or two of definition here becomes necessary. A purely contagious disease is one that appears in a healthy subject after being in proximity with one affected with the same disease. The contact between the healthy and diseased may not have been immediate. Disease following on eating the grass where a sick animal has lain, or being placed in an unventilated room, vacated by a sick animal, would be examples of contagion. An epidemic disease, according to its commonly received meaning—although the term has many loose applications—is where many individuals are affected from one common cause, but each independently of others.

Upon this point, in the disease under question, as on many others, doctors disagree. In the investigation before the Massachusetts Legislature, I found on the side of its non-contagiousness, the highly scientific men who had seen little of the disease, but who reasoned from the analogies governing disease in general. On the side of its contagiousness were the community in the neighborhood of the disease, and I may add, most of the physicians who had gone into the district to examine the disease—many of them with preconceptions against the fact of its contagion.

Says Dr. Martin, of Worcester: "I went to Brookfield and was there three days, testing the nature and character of the disease. I agreed, at that time, with the rest of the medical profession, in thinking that it was not contagious. I went there with the expectation of being able to prove that the disease was not contagious; but in investigating the cases, I was convinced of the contagious character of the disease beyond a doubt. Every case I saw there I was able to trace back to Mr. Chenery's herd."

Dr. Saunders, a veterinary surgeon, of twenty years experience says, in his testimony in relation to his first visits in the infected district: "I did not think at that time that it was contagious. I considered it a disease more of location than anything else. I thought it was caused by the cattle being kept in a close place, breathing an impure air—a large number of cattle in a small place. But since that I have come to the conclusion that it must be a contagious disease."

Dr. Charles M. Wood, who had experience in the disease from its commencement to the present, and who had first seen it at its outbreak in Mr. Chenery's herd at Belmont, examined:

Question. "Have you arrived at the conclusion that the disease is contagious?"

Answer. "I have. I think it is not epidemic."

Q. "Do you know of any disease in neat cattle that you regard as contagious?"

A. "No Sir; I know no contagious disease in cattle, except the one just alluded to."

Q. "And if this is contagious is it purely exceptional?"

A. "Yes, Sir; I should think so."

William S. Lincoln, Esq., a prominent citizen and agriculturist, and President of the Worcester County Agricultural Society, whose attention from the first had been constant, under examination, says:

Question. "Do you believe there would be any opposition in Worcester county if the Commission should be empowered to encircle the county, and prevent all egress or ingress of cattle? Do you believe the people would heartily coincide?"

Answer. "I have no doubt of it. In some towns the in-

habitants have taken that responsibility, without authority of law, and the vote of the town is uniformly respected."

Q. "Do you think that any claims for damages would be presented?"

A. "I can only speak for myself. I should not. * * * * I believe it to be contagious, and therefore cannot answer what I should do if I held a different opinion."

Mr. Chenery, who may be considered the innocent cause of the importation of the disease, and who, on that account, would gladly have seen it proved non-contagious, says:

"We thought it was caused by a want of ventilation in the barn, up to the time of the North Brookfield excitement. Since that time we have had no doubt that it was contagious."

Question. "Whose theory was it that the disease was owing to bad ventilation; the surgeons' or your own?"

Answer. "I think it was first suggested by Dr. Saunders."

Q. "What did you think about it?"

A. "I agreed with him at one time that it was so. I have altered my mind. I have no question now that it is contagious."

Charles L. Flint, Esq., Secretary of the Massachusetts State Board of Agriculture, and author of the well-known treatise on "Milch Cows and Dairy Farming," in an Appendix to a late edition of that work, says: "At the time the first edition of this work appeared, no instances of this terrible scourge had, to my knowledge, appeared in this country. During the year 1859, however, several cases occurred in Massachusetts and New Jersey, which, from their symptoms both before and after death, can leave little or no doubt of their being genuine pleuro-pneumonia, while, at the same time, they add weight to the already conclusive testimony that the disease is contagious or infectious in its character." * * * "The outbreak of this disease can be traced invariably to the introduction of cattle from abroad, and its spread and extension can only be prevented by the immediate and complete isolation of the infected animals, or the destruction of all animals in which premonitory symptoms appeared, and those which have been exposed to infection."

I add only one authority on the subject of its contagious-

ness, M. Collot, author of a recent and reliable French work on the dairy cow, who, in speaking of this disease holds the following language: "This malady is the greatest scourge which could fall upon the farmer. It is hereditary and contagious, and hence it will rarely disappear, or rather never disappear from a country which it has once invaded. To my mind, the terrible typhus is less to be dreaded than pleuro-pneumonia, because, if it strikes severely, it may disappear, and is not persistent; the evil is only temporary; while with pleuro-pneumonia, it is lasting, contagious, and endemic or latent, and ready to break out on any exciting cause. It is then the most terrible of maladies which could threaten our most valuable herds of cattle."

Drs. Bigelow and Jackson, of Boston, physicians of eminence, express doubts of its contagiousness. It does not appear that either had ever seen an animal sick with the disease. Yet their scientific eminence, and the generally accurate reasoning they adopt, entitle their views to attention. "A disease," say they, "confined to the lungs, is never contagious; what is there in this that should make it the exception?"

To my mind, the difficulty is bridged by a further examination of the essential nature of the disease. Upon a conception of its true character as a febrile disease—a fever of low grade, with a lung disease as its eventual localization—the difficulty vanishes at once. We then can acknowledge that the breath of the animal, the exhalations from its body, its urinary or intestinal discharges, or any of its secretions whatever, may communicate the disease, and none of the analogies of science are in any manner disturbed. This subject of contagion may have been dwelt on at too much length in the foregoing remarks; but if the disease continues to attract attention among our own cattle interests, this question will imperatively demand solution.

The circumstances in Massachusetts have not been favorable either to solving the question of its contagiousness or its curability. The Commissioners appointed to arrest the disease, felt authorized to do nothing, save to extirpate it as rapidly as possible; and, accordingly, all animals at all diseased, were killed at once, with but few attempts at cure, and no delays for experiment. Yet, we fortunately have the results of experi-

ment elsewhere, which will serve our purpose. It appears, that in 1854, a scientific commission was instituted by the French Minister of Commerce, Agriculture and Public Works, for the investigation of the mooted points in this case. The questions to be solved by experiment were the following: (The word translated "cohabitation" in the questions and replies, means simply the dwelling together.)

1. "Is epizootic pleuro-pneumonia susceptible of being transmitted by cohabitation, from sick to sound animals ?

2. "In the cases where contagion is found operative in this manner, do *all* the animals of the kind, living in the same habit of contagion, contract the disease, or are there some who resist its influence; and what proportion of the animals fall sick, and what remain unaffected ?

3. "Among those which contract the disease, how many recover their health, and in what condition ? How many sink from the disease ?

4. "Are there any animals of the bovine species who prove decidedly opposed to the contagion of pleuro-pneumonia ?

5. "Are animals of this species preserved for the future from being attainted with this disease when, after a first cohabitation, they have presented no more than symptoms of slight indisposition, and that consisting principally in a cough more or less persistent ?

6. "Are those animals which have contracted it for the first time, more susceptible of taking the disease again?"

After a thorough course of experiment, made by associating sound animals with the diseased, the Commissioners reported in the shape of the following conclusions:

1. "That the disease is susceptible of transmitting itself through cohabitation, from sick animals to those in health, of the same species.

2. "That all animals exposed to contagion, through cohabitation, do not contract the disease; there being some among them who thoroughly resist the contagious influence, and others who do but experience, under such influence, a slight indisposition, and that of short duration.

3. "Among the animals who contracted the disease, some

recovered, and retained, with their recovery, every external appearance of health, while others succumbed.

4. "Such animals as presented but slight symptoms of indisposition after a first cohabitation, appeared preserved by this trial for the future against other attacks.

5. "Animals once attacked, appeared ever after, exempt from the influence of the contagion."

With regard to the disease, as now existing in Massachusetts, I consider the fact that it is contagious, most fortunate as bearing on the probability of its speedy extinction. If it is communicated by contagion, and in that manner only, there is certainly science, energy, and public spirit enough in Massachusetts to hold it in check. Even if it creeps from herd to herd, and from town to town, for a wide distance from its present location, it will be pursued by such exterminating forces that its suppression will be only matter of time. The Connecticut river and the Hudson, each throws itself, as an effective *cordon sanitaire*, between danger and ourselves, that can only be passed by negligence or culpability. But if all the evidences on which I have relied, in establishing its contagiousness, should prove fallacious; if, like the yellow fever, the cholera, or the influenza, it is purely epidemic, we must dismiss the idea that it landed in Boston on the 23d of May, 1859, and confess that it was spontaneously generated during the past twelve-month in about forty farms in central Massachusetts; we must also confess that the disease lately reported as existing in New Jersey, on Long Island, and in the Canadas, is the same disease; and that we are about to be invaded by a general scourge, in comparison with which, financial reverses, short crops, and dull markets are themes of absolute joy! But this last view I cannot accept. I believe it was imported—that it spread simply because it was not at first recognized as new or fatal, and I trust the strong arm of a vigilant Commission has already said to it, "thus far and no further."

It may be naturally expected that some observations should be made on the treatment of this disease. But, for reasons before stated, its existence in Massachusetts has added little to our stock of facts in regard to its successful management. Yet general experience will afford some valuable suggestions.

Although cattle in the best condition were among its victims, all testimony has gone to show that those who best withstood contagious influences were those in good constitutional condition, and that the presence of ill-conditioned cattle in a herd was a positive element of danger. One animal in Chenery's herd is particularly noted, as seeming to resist any amount of exposure, and his immunity from disease is, in a great measure, attributed to his splendid physical condition.

It is strikingly apparent, that while cattle were being housed, the disease raged with especial virulence, and that its abatement timed with the turning out of the cattle in the Spring; and so much stress is laid on bad ventilation as a cause, that some, who afterwards acknowledged it contagious, at first attributed it to the close apartments in which the cattle were confined. Well ventilated and dry apartments, and a good stock of well cured fodder are, to say the least, excellent prophylactics.

With regard to the treatment of the disease, when it has once made its appearance, it may be summed in brief space. *The isolation of the diseased from the sound should be instant and complete.* No fact is more universally conceded among all scientific men than that the intensity of any contagious emanation is in direct ratio to the multiplication of numbers from which it proceeds; or, to reduce the idea to illustration, if a herd of cattle should be invaded, and the infected removed at once, the prospect for saving two-thirds is better than the prospect of saving one-third would be if allowed to associate together without restriction. If kept together, the contagious matter becomes intensified, and is rendered so strong as to break over the constitutional power of resistance even in the most robust animals.

Should the disease ever invade the cattle herds of Illinois, (which Heaven avert!) every considerable farm, or every neighborhood should have its isolating enclosure, in some unfrequented situation, to which diseased animals should be removed on the very first symptoms of disease. Even in those thus diseased and isolated, I am satisfied, from all the testimony, that the mortality could be so materially reduced as to

convert, what has been in some other countries a wasting scourge, into an ordinary disease, submissive to easy remedy. We can imagine, among the panic-stricken natives of South Africa, a loss of 90 per cent. of cattle, and attribute such a mortality to ignorance and terror; and can also conceive an equal mortality among the bloated animals whose depraved function it is to stand in stalls all day, converting brewer's slop into drink for Londoners. The figures given from such instances should be shorn by many of their terrors before being applied to our different circumstances.

The principles of medical treatment that have been adopted are closely similar to those used in the treatment of what is supposed a kindred disease—the pneumonia of the human subject. Bleeding, mild cathartics, and counter-irritation, by means of large mustard seed applications to the chest, are most specially alluded to adopted in such cases as have been subjected to any treatment.

Mr. Chenery, with whose cattle the disease is believed to have been introduced, endeavored to obtain from Holland some suggestions respecting the mode of treatment there adopted, with, however, no very satisfactory results. After describing the process of inoculation, his correspondent says in regard to its value as a preventive: “The benefits resulting from this discovery are such that where the peasants formerly lost from fifty to sixty per cent. of their cattle, they now hardly lose one per cent.”

Collot, the French author previously alluded to, gives the following course of treatment: “Bleed slightly in the neck, rub the whole body for half an hour with whisks of straw, and then cover the animal and leave it alone. Three or four hours after bleeding he would give an emetic in warm water, followed by eight similar doses, two hours apart; during the interval of the two hours he would give the animal freely of Glauber's salts in liberal quantities of barley water. He would also have a second bleeding follow, eight or ten hours after the first.”

It must be confessed that the above treatment is something of the “heroic” sort, especially as he afterwards prescribes the following:

“Take Sulphate of Potassa, 1 oz.; Sulphate of Zinc, 1 oz.; Spanish Powders, 1 oz.; Oil of Turpentine, 1 oz.; Camphor, $\frac{1}{3}$ oz. Reduce the whole to a powder and dissolve in one quart of vinegar; the whole to be kept in a bottle and shaken frequently. Raise the head of the animal, and turn a spoonful down the passages of the nose. The animal will sneeze powerfully, and throw out the thick mucus which obstructs the air passages. Repeat this practice for several days. If the disease resists this treatment, and the animal refuses to eat or ruminate; or, if, after having eaten, the belly is swollen, the animal froths at the mouth, lows frequently, and is unable to lie down, it is better to kill it at once, and not, while losing time, add to the danger of increasing the contagion.”

Collot also adds: “Pleuro-Pneumonia has not as yet attacked any but neat cattle; it has not extended to horses, among which the contagion is not to be apprehended.”

During the prevalence of this disease in Massachusetts, a variety of secret prescriptions have been tendered the Commissioners, with strong claims to merit on the part of those offering them. But they have been entitled to little attention—being, for the most part, attempts to foist on public attention through the excitement of the subject, some valueless nostrum. I apprehend that rational treatment in this disease will best resolve itself into this:—the separation of the sick animal from the well, and its confinement in some dry and well ventilated shed, where it will be secured from the effect of injurious draughts of air, and have free opportunity to stand or lie down at will. There, a well regulated diet, consisting chiefly of bland and moderately nourishing liquid food, will best enable Nature—the safest physician and nurse in all doubtful cases—to do its work in overcoming the disease.

It is possible that further experience will afford us some course of remedy that may prove effectual. With our present light, we have only the guidance of the ordinary principles of common sense.

It only remains in the completion of these observations, to advert to the necessary measures to guard this commonwealth against the invasion of this calamity. The system of police

restriction laid down in the proclamation under which this commission appears, is so comprehensive that its enforcement on the part of a vigilant community, is all that is at present practicable, or perhaps necessary. Yet it is almost incredible how completely a petty individual selfishness will over-ride the broadest public interests. I had the best of testimony at the West Brookfield railroad station, that, on the day before my arrival, a cow had been shipped from the next station east, for Wisconsin—passing in its transit, of course, through our own State. It is by some such culpability that our interests will be—if at all—sacrificed.

In the testimony of Mr. Lindley—heretofore alluded to—the following interesting statement is made of the value of restrictive measures. He says:

“It was kept off in the region in which I lived, in this way: The chief with whom I have lived occupies a considerable extent of territory, and he is fortunately fortified on one side by a range of mountains, and on the other by a precipice some hundred feet in height. He had assembled his tribe for another purpose, and wanting my advice in reference to some political difficulties, he sent a messenger to tell me of his trouble. I went to him, and after that matter was settled, I took occasion to tell him what the disease had done and would do, and I said to him, ‘there is just one thing to do, and that is, to keep your cattle where they are and not allow any to go out or come in.’ Well, the people there love their cattle, as they say, better than they love their lives. They took the alarm, and every effort that was made, on the part of any one, to bring cattle into the country, was immediately and stoutly resisted. The intruder was met with spear and shield, and threatened with death and destruction to himself and cattle if he came a step farther, and so was made to go back. Only half a mile off, within sight of these cattle, dead animals were lying unburied that had been exposed to this contagion. The disease was brought there by the oxen of an individual who had been in the interior, and when he came home his oxen died. They communicated the disease to all the cattle in that neighborhood, and I never saw more complete destruction.

There was not a single head left in all those kraals. Those cattle came up to within half a mile of our boundary, and you could look down and see herds of them lying dead. That was three years ago, and yet, when I came away, the disease had not got one inch over that line."

Notwithstanding the necessity for all proper restrictive measures, it is still to be hoped that the proposal to exclude cattle from our ensuing State and County Fairs will meet with no favor. The danger is yet a remote one, and not likely to be increased by such gatherings; at least not to a degree to warrant us in robbing them of their chief element of interest.

In conclusion I would say, that the foregoing observations are believed to contain all the important information elicited on this subject. Should the disease ever reach us, however remote in time, and however altered in circumstances from any thing herein foreshadowed, the results of this investigation will have their value. But if all is but the sound of a danger that passes afar, leaving us untouched, they may still have a value in pointing us with gratitude to that Providence which spares this great element in the future comfort and wealth of our advancing State.

I am your Excellency's

Very obedient servant,

ANDREW McFARLAND.

ILLINOIS STATE HOSPITAL FOR THE INSANE,

Jacksonville, July 1, 1860.

